



ANNUAL REPORT
ON THE
PUBLIC HEALTH
OF
GIBRALTAR,
FOR THE YEAR
1892,

BY

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ANNUAL REPORT

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Vital
statistics.

In recording the statistics connected with the Public Health of Gibraltar for the year 1892, I have endeavoured to conform to the arrangement adopted in the annual report for the previous year. The advantage of this will be felt when the next quinquennial or decennial period comes to be reviewed.

Population. The civil population, as estimated at the last census (April 5th, 1891), was 19,100, of which 2,194 were Aliens residing here on permit. The excess of births over deaths for 1891 was 136, so that at first one would be induced to estimate the population for 1892 at 19,236. There are several reasons, however, for believing that the civil population has not materially increased since the last census, the chief reason being the fact that the want of house accommodation is much felt and that many families have in consequence migrated to Linca. For example, nearly all the tenants of the building in District XXVII., recently vacated for occupation by soldiers' families, are reported to have left Gibraltar. Further, the average annual increase of population for the ten years 1881-90 was only 72, so that the population is very liable to be over-estimated, by considering only the excess of births over deaths.

I have accordingly taken the figures of the last census as the basis for calculating the vital statistics of 1892, subject, of course, to correction by *data*, that may be obtained from any subsequent census.

BIRTHS.

Birth-rate. The total number of births recorded was 545, equal to a birth-rate of 32·23 per 1,000*. Amongst the military population 112 births were recorded. In the previous year the birth-rate of the fixed civil population was 28·1 per 1,000 and the average for the decennial period 1881-90 was 29·1. The excess of births over deaths in 1892 was 140, as compared with 136 in 1891.

The birth-rate for the year under review is the highest recorded

* The birth-rate is calculated from the "*fixed*" and not from the "*total*" civil population, as no births occur amongst the aliens, who reside here under special conditions regarding marriage.

since 1881, being 1·3 in excess of any birth-rate recorded during the decennial period, 2·88 in excess of the average birth-rate of the period, and as much as 4·0 in excess of the birth-rate of 1891. It is generally recognized that an exceptionally high birth-rate is a sign of prosperity in a community; but, in estimating the causes of high or low birth-rates in Gibraltar, one must not overlook the fluctuations that are apt to occur in dealing with small numbers and the fallacy of drawing general conclusions from them.

The chief point to note with regard to this high birth-rate is the important influence it has upon the death-rate, in consequence of the unusual addition to the number of individuals living at the age of highest mortality.

DEATHS.

General mortality. The aggregate number of deaths registered amongst the total civil population was 415, of which 4 occurred amongst aliens residing here on permit. The deaths of 27 non-residents and 39 of the military population were also recorded.

The general or "crude" death-rates derived from these numbers are 21·72 per 1,000 for the "*total civil*" and 24·31 for the "*fixed civil*" population; the death-rate amongst *aliens* being only 1·82 per 1000.

These death-rates are well below the average for the decennial period 1881-90, the actual decrease being 1·33 and 1·52 for the total and fixed civil populations respectively. They are, however, considerably above the corresponding death-rates for 1891, the increase being 2·77 and 3·61 per 1000.

It will be remembered that the death-rates of the total and fixed civil populations in 1891 were exceptionally low, and it was not predicted or expected that the death-rates for 1892 would be so satisfactory. Yet with a birth-rate equal to 4·0 per 1,000 in excess of the birth-rate for 1891, the death-rate for 1892 cannot be considered high for Gibraltar; and it is also satisfactory to note that it is well below the average for the last quinquennial period.

Quarterly mortality. The monthly and quarterly death-rates for the year are shown in Table III. of the Appendix. The second quarter has the highest and the fourth the lowest mortality, thus following the order of quarterly mortality during the decennial period. There is little to remark with regard to monthly mortality, beyond **Monthly mortality.** the comparatively high number of deaths in May and the low number in September and October. Very nearly half of the 46 deaths recorded in May occurred amongst children under 5 years of age, as many as 18 being amongst infants. The explanation of the high mortality of the month is found partly in the unusual number of births that occurred in the earlier months of the year, especially

in February and March, and partly in the prevalence of whooping cough and its fatal complication, pneumonia, during the succeeding summer months. The low mortality of September and October is a common feature in the mortality statistics of recent years, though the cause is not very apparent. It evidently is not due, as has been suggested, to any considerable migration of population from Gibraltar during these months.

Infantile mortality. The total number of deaths amongst children under one year of age was 100, equal to an "*infantile mortality*" of 183·4 per 1,000 births. In 1891 the infantile mortality was 152·3 and the average for the decennial period 167·4. The infantile mortality of 1892, therefore, does not compare favourably with that of previous years; the chief causes of excess being shewn under the deaths returned as due to whooping cough, debility, convulsions, bronchitis and tubercular diseases. On the other hand the returns of deaths due to diarrhœal diseases, usually the chief causes of infantile mortality, are considerably less.

Mortality of age-group "under five years." The mortality of children under 5 years of age is necessarily largely influenced by the infantile mortality and by the high birth-rate of the year. The estimated death-rate, therefore, of this age-group—78·9 per 1000—is less than one would expect, and is 6·6 below the average for the decennial period. In 1891 the mortality under 5 years of age was 68·1 per 1000. Discounting the influence of the exceptionally high birth-rate upon the age-group, its mortality in 1892 was, therefore, comparatively low, though it is still a high mortality, when compared with districts of good sanitary repute in England.

Mortality of other age-groups. The death-rates of the several age-groups and of males and females are shewn in the following table:—*

Total Civil Population.	Death-rates of the several age-groups in 1892.											
	At all ages.	Under 5 yrs	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75 and upw'ds
Males.....	24·1	88·3	7·19	1·13	3·26	7·96	8·92	19·26	25·27	42·59	93·75	200·00
Females ...	19·6	70·67	6·86	0·00	3·24	3·52	8·11	11·05	15·00	28·64	70·00	176·13

The low death-rate of the age-group 10-15, shewn in this table, is even more remarkable than the death-rate of the age-group 15-20, especially commented upon in the last annual report; and, so far as

*The actual number of deaths for the several age-groups is shewn in Table I. of the Appendix. The population of each age-group is taken from the Census returns.

the statistics of the last two years go, it would appear that the mortality of the age of puberty is in a striking manner lower in Gibraltar than in England.

The mortality of the remaining age-groups is very similar to the mortality shewn in Chart II. of the Appendix to the Annual Report of 1891, and calls for no special comment.

The number of deaths amongst persons over 75 years of age was considerable, and there were several instances of longevity amongst them, one death being registered as occurring at the age of 103.

Mortality according to sex. The deaths amongst males were 210, equal to a mortality of 24.1 per 1000; amongst females 205, equal to a mortality of 19.6 per 1000. Both of these death-rates are below the average for the decennial period 1881-90, but higher than the corresponding rates in 1891.

The great difference between the death-rates of the sexes in Gibraltar was the subject of special comment in the last Annual Report, and there is little doubt that its explanation will be found in the facts there referred to.

"Corrected" death-rates. For comparison with English towns the following are the death-rates for 1892, corrected according to the age and sex distribution of the Civil population:—

Corrected general death-rate (factor for correction 1.09809) = 23.85 per 1000.

Corrected male death-rate (factor for correction 1.1339) = 27.3 per 1000.

Corrected female death-rate (factor for correction 1.0598) = 20.7 per 1000.

The difference, therefore, between the corrected death-rates of the sexes in 1892 is 6.6 per 1000, as compared with 6.82 for the last decennial period and 7.55 for 1891. In England the difference is only about 2 per 1000.

DISEASES CAUSING MORTALITY.

Diseases generally. Table I. of the Appendix shews the analysis of the diseases registered as causes of death during 1892, and is similar to the Tables published in previous annual reports.

As a rule, the diseases noted in the returns indicate definite pathological conditions, but it has not been uncommon to find a prominent symptom registered in place of a definite disease, and the returns are consequently very much marred by this. For example, six deaths from "marasmus," a term excluded entirely from the official nomenclature of diseases, were registered, and have to be placed amongst deaths due to "debility," a term in itself vague and unsatisfactory as indicating a cause of death.

Principal zymotic diseases. During the year there were 60 deaths from the principal zymotic diseases, equal to a zymotic death-rate of 3·14 per 1000 (see Table III. Appendix), as compared with 3·03 in 1891, and 4·88 for the decennial period. The full statistics of these diseases are shewn in the Appendix.

Small Pox. Of the five cases of small pox, notified as occurring amongst the resident population, one only, namely, the case in June, could not be traced to any definite source of contagion. All the other cases contracted the disease in Tangier, where a serious epidemic was and is believed to be still raging. All these cases had arrived in Gibraltar from Tangier within the recognized incubation period of the disease. Fortunately each case, as it occurred, was promptly dealt with and, with the exception of one, which was treated at home, removed to the Segregation Block of the Colonial Hospital. The members of the family of the case treated at home submitted to re-vaccination, and it is satisfactory to note that, notwithstanding the introduction of these *foci* of disease from Tangier, no single case was contracted amongst the rest of the community. The steam disinfecting apparatus at the Colonial Hospital supplied the much-needed want of an effectual means of disinfecting the bedding and all articles likely to have been exposed to infection.

Six cases of small pox were landed from ships in harbour and taken to the Small Pox Hospital, only one of them proving fatal.

Vaccination. The Vaccination Ordinance worked smoothly and well during the year, and, although re-vaccination in early adult life must always be looked upon as a *desideratum*, the protection afforded by the Ordinance cannot be over-estimated.

Whooping Cough. There were six deaths from Whooping Cough during the year, all amongst children under 5 years of age. There was a distinct epidemic of this disease in the second quarter of the year, and many of the deaths from bronchitis and pneumonia during that period might justly be referred to this cause. Although the disease considerably influences the zymotic death-rate, no notification is required and preventive measures, even if practicable, could not be enforced.

Diphtheria. Including under the heading *Diphtheria* all cases of membranous croup, in accordance with the course adopted in reports of sanitary districts in England, there were 18 cases of Diphtheria and 9 deaths recorded during the year. In 1891 there were 7 deaths amongst 12 cases notified. The years previous to 1891 shew a much greater incidence of this disease. For example, the average annual notifications since 1885, when compulsory notification was first enforced, were 51, and the average number of deaths for the decennial period 1881-90 as much as 16·9.

The cases in 1892 were sporadic, nor could one case be traced to infection from another. They depended, so far as could be judged, upon unsanitary conditions in and around the premises, where they occurred.

The distribution of this and other notified diseases according to months is shewn in Table II. Appendix.

Continued Fevers. Three cases of continued Fever and one death were notified. There is reason to believe that many other cases occurred, which were not notified. This is much to be regretted, as the nature and cause of this disease calls for continued investigation, and demands as careful notification as any of the other diseases, enumerated on the Schedule for notifying infectious and contagious diseases. It is only by the gradual accumulation of the *data*, derived from such notification that the unsanitary conditions, upon which the disease is supposed to depend, can be definitely ascertained.

Enteric fever. Fourteen cases of enteric fever with six deaths were notified during the year. Only two cases were landed from the Bay, neither of whom died. In 1891 there were thirteen cases and four deaths. The average number of deaths annually from this disease for the decennial period 1881-90 was 8.6. During 1892, therefore, there has not been any increase in the disease. With regard to the probable source of these attacks of enteric fever, four at any rate of the cases contracted the disease in Spain, three of them in Linea and one in Campamento. One of the fatal attacks apparently originated in the water of a tank exposed to contamination from a well-manured terrace garden. The water was found to contain numerous colonies of micro-organisms in addition to an excess of organic impurities, and this case may be taken as an instance of the kind of risk incurred by the use of such terraces as collecting areas for tanks. The other cases notified seem to have depended on general unsanitary conditions.

Diarrhoeal diseases. The total number of deaths from diarrhoeal diseases was 35, or 7 less than in 1891, when the number was exactly the average of the previous ten years. Considering the number of infants added to the population during the year, this result is the one satisfactory point in the otherwise high infantile mortality of the year. The third quarter accounted for practically half the total number of these deaths, there being three only in the first quarter, seven in the second quarter, seventeen in the third, and eight in the fourth quarters.

The diffusion of knowledge on matters of domestic hygiene will be found in all probability to be of considerable value in aiding the prevention of these and other diseases, and is well worthy the attention of those entrusted with the education of the people. The unsanitary and sometimes fatal custom of keeping all windows and ventilating apertures of sick-rooms rigidly closed is far from uncommon here; and it may seem incredible, too,

that amongst some sections of the community the custom still prevails of applying to certain parts of the body the entrails of pigeons, lamb's fat, and similar so-called remedies for the cure of disease. Such forms of domestic medicine have, however, come under my own personal observation.

Scarlet fever. The two cases of scarlet fever, notified in June and July, occurred in the North Front, and were contracted from a source which could not be traced. The remaining four cases were confined to two families, and, with the exception of the first, were contracted from one another as a result of insufficient care on the part of the families attacked in maintaining the isolation enjoined. Beyond this, the measures adopted prevented any further outbreak of the disease.

Measles. Although three cases of measles were reported during the year, none of them were sufficiently characteristic to require any special notice, and were considered by the medical practitioners themselves to be doubtful cases.

Erysipelas. The cases of erysipelas occurred almost invariably in houses overcrowded or otherwise insanitary.

Epidemics. Much anxiety was felt during the year concerning the fatal epidemics of Cholera and Influenza raging in several parts of Europe; and, as a matter of fact, the latter disease made its appearance here in a mild epidemic form at the end of 1891, and continued throughout January and February of 1892, the epidemic ending in the notification of a few cases in March and April. One death only occurred out of 154 cases notified. It was expected that many of these cases might have died subsequently of pneumonia or other complications, but investigations on this point disclosed the fact that all the cases notified, except one, were living at the end of the year.

Cholera. During the autumn months cholera appeared to be steadily advancing towards the Mediterranean ports through Austria and France, but there was fortunately at no time any actual threatening of the disease here; and an equally fortunate fact was the remarkable freedom from acute gastro-intestinal complaints, such as had occurred during the autumn months of the previous year. The alarm, to which such attacks, probably innocent in themselves, might have given rise, can readily be imagined, should they have unfortunately occurred at that time.

Tubercular disease. The total number of deaths from tubercular diseases was exactly the average for the decennial period 1881-90. The death-rate, however, 3·29 per 1,000, is ·10 below the death-rate for that period. It is ·52, on the other hand, above the corresponding death-rate for 1891.

The unsatisfactory feature in this result is that the promise of a steady decrease in the mortality from tubercular diseases, consequent upon improvements in the sanitary conditions of tenements, has not

been fulfilled. Certain special influences, however, were present in 1892 to account for this. The year was characterized by a seasonal rainfall, which has only been exceeded once during the present century*, and the effect of this in increasing the dampness of habitations, which is so important a factor in the maintenance of tubercular diseases, cannot be overlooked. Overcrowding, too, an equally prominent cause of tubercular disease, has in no way diminished. There is, indeed, every reason to believe that it has largely increased during the year and it has been estimated that almost half the families of the civil population occupy only 1-room tenements, (see Table V. appendix). Perhaps, too, sufficient emphasis has not been given to the almost universal absence of proper means of drying and warming these dwellings; and during so wet a season as that of 1892 the evil effects of this would be specially marked.

Respiratory diseases. The number of deaths from the chief respiratory diseases was 117, equal to a respiratory death-rate of 6·12 per 1,000. This is almost exactly the decennial average, although it is ·94 above the corresponding death-rate for 1891. The exceptionally heavy rainfall and the existence of epidemics of influenza and whooping cough are the special causes likely to have influenced the incidence of these diseases.

Influence of climate on Respiratory diseases. The following Table shews the monthly distribution of the chief respiratory diseases, along with the meteorological *data*, upon which their incidence may have depended.

Months.	Respiratory Diseases.							Meteorology.		
	Bronchitis.	Pneumonia.	Phthisis.	Tubercle of Lungs.	Congestion of Lungs.	Hæmoptysis.	Total respiratory diseases.	Rainfall (inches)	Mean relative humidity.	Mean temperature (Fahrenheit).
January.....	4	4	2	—	—	1	11	4·32	77	55·2
February	6	4	4	1	2	—	17	10·67	77	57·
March	3	4	1	1	—	1	10	10·50	76	57·9
April.....	3	4	3	1	—	—	11	5·47	72	60·7
May	3	8	—	1	2	—	14	·81	64	66·
June	4	3	3	1	—	—	11	·57	62	71·6
July	2	2	1	2	—	1	8	·05	62	75·4
August	2	1	3	—	1	1	8	<i>Nil.</i>	71	75·1
September.....	—	—	5	1	1	1	8	1·05	74	73·
October.....	—	1	3	1	—	—	5	8·05	72	65·
November.....	3	—	2	1	—	—	6	1·02	79	60·6
December	1	3	1	2	—	1	8	2·69	76	56·4
Totals.....	31	34	28	12	6	6	117	45·20	71·8 (average)	64·5 (average)

* The rainfall is calculated as the rainfall of the rainy season commencing in September and ending in April, and amounted to 59·35 inches for the season 1891-92. The actual annual rainfall for 1892 is less. (See above Table).

The figures dealt with are too small for any general conclusions to be drawn, but it will be noticed that the months of low temperature and high rainfall are those in which the greater number of deaths from the chief respiratory diseases occurred.

Other diseases. The other diseases, noted in Table I. of the Appendix, do not call for any special comment.

SANITARY CONDITIONS.

General sanitation. The general sanitation of the Fortress with regard to the important points of sewerage and water supply is still under consideration.

Ventilation of sewers. It would be well, however, to bear in mind the condition of the ventilation of the present system of sewerage, and the possible pollution, to which the collecting area of the Moorish Castle Tank is exposed.

With regard to the former point it will be found that, owing to the very reasonable complaints of the public, ventilating apertures have been from time to time closed, so that at present there are only eight out of the forty-eight surface ventilators of the town section of the main outfall open, and in the southern section only three out of fifteen. The Europa Flat section is not in so unsatisfactory a condition, only three out of its thirteen surface ventilators having been closed, but the other two sections, the Middle and Northern Outfalls, could not well be more inadequately provided with surface ventilators, the former having none open and the latter only two out of seventeen.

It is certainly not advisable to have sewer-gas escaping in the narrow streets close to the windows of living rooms, but, considering the question broadly, it is difficult to conceive anything more unsanitary than a water carriage system of sewerage, which is not amply ventilated. Sewer-gas can be banished from the streets to a great extent by closing the surface ventilators, but the almost inevitable result will be the steady, possibly imperceptible, leaking of the gas into courtyards and houses. Indeed there are already several instances of its forcing its way through the storm gulleys, and, when it is remembered that these are placed against the sides of the streets, often under windows of living rooms, the necessity of relieving them of the pressure of sewer-gas is evident.

The question is undoubtedly a difficult one to deal with in Gibraltar, and the increased and continuous use of deodorants and disinfectants is the chief measure, upon which any reliance can at present be placed; but it would seem almost imperative that, in addition to this, the heads of all branches of the main sections should, at any rate, be adequately provided with ventilating apertures, and that surface venti-

lators which are not in close proximity to dwellings should remain open.

Moorish Castle Tank. With regard to the collecting area of the Moorish Castle Tank, it is important that steps should be taken to place it in a more satisfactory condition. The nature of the pollution, to which it is exposed, might be very serious during the prevalence of certain epidemic diseases.

Dust Destructor. The most important sanitary measure of the year was the erection of a Dust Destructor capable of consuming all the refuse of the town, and this improvement will, it is hoped, be a stepping stone towards placing upon a more sanitary basis the arrangements for storing refuse until removal and for carrying it through the streets. It would be wise to introduce a measure, enforcing the provision of a definite form of dust-bin for each house, and to erect a shed or sheds for the dust carts, &c., when not in use. The Commissioners have probably already considered these points, and they are mentioned merely to bring such important sanitary requirements into due prominence.

Prevention of Infectious Diseases. During the year the measures available for dealing with infectious diseases had satisfactory results, although this must not be taken as a criterion of what might happen, when they are put to the test of a severe epidemic. The density of population and the large percentage of families living in 1-room tenements render the prospect of such an epidemic being checked at the outset very remote, unless the means of isolating the persons attacked from the rest of the family are readily available. It has been possible to deal with sporadic cases under present conditions, but should several cases occur, as is quite conceivable, during the course of one day, the want of some definite organization will be much felt.

An Ashford litter has been obtained for the carriage of infectious cases through streets and ramps, inaccessible to the ambulance wagon; and it has the very great advantage of being adapted for disinfection bodily in the steam disinfecting apparatus after use.

Milk supply. The Milk supply is a question which the Commissioners are, no doubt, keeping prominently before them. Although many of the goat farms on the Rock have been abolished, no measures are as yet in operation to bring the Milk supply from Spain under sanitary control. As an example of the extent to which Milk is being adulterated here, it may be stated that only four out of fifteen samples of Milk taken at random from street vendors coming from Spain were found unadulterated. According to the Analyst's results, the following statement shews the amount of the added water in the remaining eleven samples:—

5 to 10 %	of added water found in 1 sample.
10 to 15 %	“ “ 5 samples.
15 to 20 %	“ “ 1 sample.
20 to 30 %	“ “ 1 sample.
40 to 50 %	“ “ 2 samples.
50 to 60 %	“ “ 1 sample.

When we consider the cases of enteric fever that occurred amongst families from Gibraltar temporarily residing in Linea and Campamento, these results shew the necessity of Bye-laws, enabling the Commissioners to deal with this form of adulteration.

Market
supplies.

With regard to market supplies, the quality of the Beef was at one time seriously threatened by a severe outbreak

Foot and
mouth
disease.

of Foot and Mouth disease amongst the cattle in Morocco.

The disease was first noticed here amongst the consignments of bullocks from Tangier on the 10th May, and from that date till the 9th August, when the inspections ceased, 2,875 cattle were inspected before being landed and 283 found affected. The meat contractors sent a special employé to Tangier to inspect bullocks before shipment, while any found affected on arrival here were dealt with according to the precautionary measures recommended by Surgeon-Major Tuthill, who was acting Health Officer at the time, and on whom the onerous duties connected with the outbreak devolved during the summer months.

The disease was also found affecting the Galician cattle, imported from Vigo for the use of the troops towards the close of the year. It did not spread to any of the animals in the Fortress, nor was there any evidence that the use of the carcasses of the affected animals, as food, was injurious to health. The precaution of course was taken of carefully inspecting the carcasses and of destroying the head and feet of all those affected.

In addition to the cases of foot and mouth disease 107 carcasses of beef, 62 of mutton, 11 of pork and several quantities of fish required inspection in the market during the year and were dealt with under the provisions of the Sanitary Order in Council. The chief diseases noted amongst these animals were parasitic diseases of the internal organs.

House to
house
inspections.

House to house inspections of the houses occupied by the civil population were continued during the year, the total number of houses dealt with up to the end of December 1892 being 415. The chief defects noted and, as far as practicable, dealt with are shewn in Table V. of the Appendix. They bear evidence of the fact, that the sanitary condition of the houses in Gibraltar is, as has often been stated, far from satisfactory; and this fact is still further exemplified, when it is remarked that the house drains in nearly every building pass under the basement, and that *pátios* sur-

rounded by high masonry walls, which shut out sunshine and prevent a free circulation of air, are often the sole ventilating areas of many of the living rooms.

House drains. A considerable amount of progress has been made during the year in improving the condition of house drains, and underground tanks, 127 of the latter having been surveyed and cleansed, on becoming empty, according to the system initiated in 1891. Wells. Very little, however, has been effected in dealing with the old surface wells, sunk against the foundations of houses, and always of a more or less suspicious character from the fact of their containing water derived from a subsoil intersected with sewers and house drains. It may not always be necessary or practicable to fill up such wells, but there should be no question of the importance, as a sanitary measure, of cementing them over and of removing the means of drawing water from those, known to be or even suspected of being polluted with sewage matters.

It is a curious fact that these surface wells, even when they are many feet above mean sea-level, contain a very large quantity of mineral constituents, chiefly chloride of sodium, in addition to much organic impurity. Of 17 wells analyzed three contained about 30 grains per gallon of mineral salts, three between 200 and 300 grains, five between 300 and 400 grains and three 400 grains and upwards. When it is stated that only the first three come within the category of usable drinking water, the significance of these results will be understood.

"Sanitary" water. The following analysis of "Sanitary water," made at various times during the year by Mr. Abrines, the analyst, is given for comparison with the well waters:—

Source of "Sanitary Water" Samples.	Mineral Salts. — Grains per gallon.	*Degree of Organic impurity.
1. Taken from the main after heavy Spring rains	83·3	·15
2. From the main after prolonged drought.....	840·7	·00
3. Direct from North Front Well in Summer	115·5	·00
4. Same as 3 after mixture with sea water.....	253·4	·07
5. From North Front Well before being pumped	16·1	·14
6. From same as 5, after two months pumping	248·	·00
7. From main after heavy winter showers	185·	·10

More than half of the well waters of private houses, analyzed during the year, had a degree of organic impurity much above ·25°,* and,

* The degree of organic impurity is estimated according to Muter's scale:—Under ·25° indicates pure water; between ·25° and ·40° indicates suspicious water; above ·40° indicates impure water.

when this is compared with the remarkable purity in this respect of the "Sanitary water," there need be no question of the superiority of the latter, apart from the hygienic advantage of its being laid on as a constant service for flushing and domestic purposes.

Terraces
connected
with tanks.

One or two striking instances of the risks incurred in having terraces connected with tanks came to notice during the year. In one case the soiled mattress, towels and clothing from a tenement, where there was a case of enteric fever, were found lying upon the terrace. Upon two other terraces, specially reported, refuse buckets and slop pails were kept; and one terrace, connected with the tank, was used as a pigeon roost. The last was inspected during a heavy shower of rain. A sample of the water was secured as it passed from the terrace into the tank, and, on analysis, found to be excessively impure. As an instructive instance of what is apt to occur in the better class houses, the case referred to in the remarks on enteric fever may also be cited.

Wash-houses. A noteworthy improvement in the sanitation of houses, let out in several tenements, is the enforcement of the provision of wash-houses, but, so far, only a comparatively small number of the old houses have been provided with suitable wash-house accommodation and much still remains to be effected in this direction.

Ventilation
of rooms.

With regard to the ventilation of living rooms the value of air bricks is undoubted, but the complaint that they cause draughts is reasonable, and they should certainly be protected by louvring or by some form of valve, adapted to counteract the draughts, the Sheringham valve being the one most generally in use.

Dampness in
living rooms.

In the last annual report some reference was made to the dampness caused by tanks placed under living rooms. The opinion expressed was confirmed during the year by the statement of one of the house-owners, when called upon to provide a boarded floor for one of these rooms. To quote his own words, he stated that "by experience it is known that a wooden floor would be productive of all sorts of insects when upon the tank" and "that shortly after it is fixed it gets rotten." It would be advisable to avoid using such rooms as living rooms.

Overcrowd-
ing and
Density of
Population.

It is not possible to report upon the extent to which overcrowding and density of population have increased or diminished during the year, because, as yet, there are no data available for comparing one year with another. With a view, however, to supplying some approximately accurate facts for future reference on this important subject, Table IV. of Appendix has been prepared from special investigations undertaken, when it was considered advisable to obtain some definite knowledge of the extent to which overcrowding prevails.

The full consideration of the facts, recorded in this Table, requires a more lengthened report than is possible here; but the attention of the Commissioners is drawn to the high density of population in many of the Town Districts, to the importance of regulating the erection of buildings in such congested areas and to the necessity of introducing Bye-laws to enable the overcrowding of the very large percentage of 1-room tenements to be dealt with in a satisfactory manner.

The natural tendency of the evil is towards increase, and I have already referred to the self-evident effects of this during the prevalence of epidemic diseases. Such overcrowding and density of population must always be a menace to the garrison, and the risks can only be minimized in the meantime by vigilant sanitary inspection and by improving in every possible way the sanitary conditions of the civil habitations and their surroundings.

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Medical Officer of Health.

Gibraltar, February, 1893.

N.B.—The publication of this Report has been delayed by changes in the constitution of the Sanitary Commissioners.

R. H. JELF, Colonel,

Chairman, Sanitary Commissioners.

April, 1893.



APPENDIX

OF THE

ANNUAL REPORT ON THE PUBLIC HEALTH

OF

GIBRALTAR,

FOR THE YEAR

1892.

TABLE I.

Deaths Registered in Gibraltar during 1892, amongst total Civil Population,
shewing diseases causing death and ages at death.

CAUSES OF DEATH.	At all ages.	Under 1 yr. of age.	OTHER AGE-GROUPS.														
			1 year.	2 years.	3 years.	4 years.	Total under 5 years.	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75 and upwards.
General Diseases	158	60	12	8	1	1	82	8	1	2	3	8	9	9	11	8	17
Local Diseases.....	249	38	13	5	2	3	61	4	...	5	8	18	28	26	30	40	29
Poisons (none) .....	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	1	...
Injuries	8	2	...	...	1	...	3	...	...	...	...	...	...	1	1	1	1
Total.....	415	100	25	13	4	4	146	12	1	7	11	27	37	36	42	49	47
CLASS I.																	
GENERAL DISEASES.																	
GROUP A.— <i>Specific febrile diseases.</i>																	
Small Pox	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Whooping Cough	8	5	2	1	...	...	8	...	...	...	...	...	...	...	...	...	...
Diphtheria	9	2	...	4	1	...	7	2	...	...	...	...	...	...	...	...	...
Continued Fever	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Enteric Fever	6	...	...	...	...	...	...	2	...	1	2	1	...	...	...	...	...
Diarrhœa	35	21	7	...	...	...	28	1	...	1	...	1	...	1	...	3	...
Erysipelas	4	...	...	...	...	...	...	...	...	...	...	...	...	1	2	1	...
Septicæmia	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Syphilis	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Influenza	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
GROUP B.																	
Alcoholism	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
GROUP C.— <i>Developmental.</i>																	
Immaturity	8	8	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...
Debility	13	11	...	...	...	...	11	...	...	...	...	...	...	...	1	1	...
Old age	13	...	...	...	...	...	...	...	...	...	...	...	...	1	4	8	...
GROUP D.— <i>Not classified.</i>																	
Rheumatism	2	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...
Malignant Newgrowth	12	...	...	...	...	...	...	...	...	...	1	1	2	5	2	1	...
Tubercle of Lungs.....	12	...	...	...	...	...	...	...	...	1	1	2	5	2	1	...	...
“ Glands, &c.	8	4	1	...	...	...	5	...	...	...	...	1	1	1	...	...	...
“ Brain	15	6	1	3	...	1	11	3	1	...	...	...	...	...	...	...	1
Anæmia.....	4	3	...	...	...	...	3	...	...	...	...	...	...	2	1	...	...
Diabetes Mellitus	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total.....	158	60	12	8	1	1	82	8	1	2	3	8	9	9	11	8	17

TABLE I.—Continued.

CAUSES OF DEATH.	At all ages.	Under 1 yr. of age.	1 year.	2 years.	3 years.	4 years.	Total under 5 years.	OTHER AGE-GROUPS.								
								5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75 and upwards.
DIGESTIVE SYSTEM.																
Stomatitis	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Ulceration of Stomach	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Volvulus of Intestine...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Typhlitis	2	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...
Strangulated Hernia ...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Obstruction of Intestine	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Colic	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Hepatitis—Acute	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
“ —Chronic ...	4	...	...	...	...	...	...	...	...	...	...	...	1	2	1	...
Abscess of Liver	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Jaundice	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Peritonitis	4	...	...	...	...	...	...	...	...	...	...	2	1	...	...	1
URINARY SYSTEM.																
Nephritis	7	...	...	...	...	...	...	...	...	1	...	...	3	...	2	...
Bright's Disease	5	...	...	...	...	...	...	...	...	...	...	1	1	...	2	...
Dropsy	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Uraemia.....	2	1	...	...	...	...	1	...	...	...	...	1	...	...	...	...
Cystitis	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
GENERATIVE SYSTEM.																
Disease of Prostate ...	3	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...
Orchitis	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Cyst of Ovary	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Total.....	249	38	13	5	2	3	61	4	...	5	8	18	28	26	30	29
CLASS III.																
POISONS (none).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CLASS IV.																
INJURIES.																
Scald	1	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Drowning	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Injuries to Head	3	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...
“ to Chest	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
“ at Birth	2	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Total.....	8	2	...	...	1	...	3	...	...	...	...	1	...	1	1	1

TABLE II.

Infectious and Contagious Diseases notified during 1892, under provisions of Section 10,
 “Medical Ordinance, Gibraltar, 1885.”

Months.		Cases occurring amongst the Resident Civil Population.														From Ships in Harbour.													
		Small Pox.		Chicken Pox.		Measles.		Scarlet Fever.		Diphtheria.		Membranous Group.		Enteric Fever.		Continued Fever.		Influenza.		Erysipelas.		Puerperal Fever.		Small Pox.		Scarlet Fever.		Enteric Fever.	
Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died	Reported	Died
January ..	...	3	...	...	1	...	...	...	...	1	1	...	...	...	...	11	4	...	1	...	...	...	...	...	...	...	1	...	...
February ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33	...	...	...	...	...	...	...	...	...	...	...	...	...
March ..	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
April ..	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...
May ..	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
June ..	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August ...	1	...	2	...	...	...	...	...	...	3	1	1	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September ..	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October ...	1	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
November ...	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
December...	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals ...	5	1	15	...	3	...	6	...	15	7	3	2	14	6	3	1	154	1	5	1	1	1	6	1	1	...	2	...	

TABLE

Monthly Distribution of Births, Deaths and Principal Diseases

Months.	Total Births (fixed Civil Popula- tion).	Deaths from all causes.		Monthly death-rate per 1000 living. (1)		Quarterly death-rate per 1000 living.		Principal Z y m o t i c Diseases.	
		Total Civil Popu- lation.	Fixed Civil Popu- lation.	Total Civil Popu- lation.	Fixed Civil Popu- lation.	Total Civil Popu- lation.	Fixed Civil Popu- lation.	Total Deaths.	Quar- terly death- rates.
January	47	38	38	23·8	26·8			3	
February ...	59	38	38	23·8	26·8	23·0	25·9	1	1·04
March	58	34	34	21·3	24·1			1	
April	43	36	35	22·6	24·8			4	
May	42	46	46	28·9	32·6	24·7	27·4	10	4·18
June	41	36	35	22·6	24·8			6	
July	38	32	31	20·1	22·0			8	
August	43	38	38	23·8	26·8	20·0	22·4	10	4·60
September ...	36	26	26	16·3	18·4			4	
October	49	23	22	14·4	15·6			4	
November ...	52	36	36	22·6	25·5	19·0	21·2	8	2·72
December ...	37	32	32	20·1	22·7			1	
Total for year and annual death-rates.	} 545	415	411	21·72	24·3	21·7	24·3	60	3·14

(1) Estimated Population { Total Civil 19,100
 Fixed Civil 16,906

III.

causing death amongst Civil Population of Gibraltar during 1892.

Deaths from Principle Zymotic Diseases.									Tubercular Diseases. (3)		Respiratory Diseases. (4)	
Cholera	Small Pox	Measles	Scarlet Fever	Diphtheria (2)	Whooping Cough	Enteric Fever	Continued Fever	Diarrhoea	Total Deaths.	Quarterly death-rates.	Total Deaths.	Quarterly death-rates.
...	1	1	...	...	1	5		11	
...	1	6	2.93	17	7.95
...	1	3		10	
...	2	1	1	...	...	6		11	
...	2	3	...	...	5	2	2.51	14	7.53
...	3	1	...	2	4		11	
...	1	1	6	6		8	
...	2	...	1	...	7	5	3.77	8	5.02
...	4	7		8	
...	1	...	...	1	...	...	...	2	7		5	
...	2	...	6	6	3.97	6	3.97
...	1	...	...	...	...	6		8	
...	1	...	...	9	8	6	1	35	63	3.29	117	6.12

(2) Includes two cases of Membranous Croup.

(3) Includes following diseases:—

Phthisis.
Tubercle of Lung.
" Brain.
" Glands, &c.

(4) Includes following diseases:—

Bronchitis.
Pneumonia.
Congestion of Lungs.

Phthisis.
Tubercle of Lungs.
Macrophysitis.

TABLE

Table shewing Areas (including street space) occupied by the Civil
1-room, 2-room, 3-room and

A.—TOWN

No. of Police Dis- tricts.	Total Area in Square Yards (Approx- imate).	Area occu- pied by Civil Popu- lation (Ap- proximate). Square yds.	Number of Houses in Occupation	Number of Families.	Distribution of the Families in tenements of			
					1 room.	2 room.	3 room.	+ 3 room.
I.	7,153	7,153	14	28	2	5	2	19
II.	9,861	9,861	41	195	88	46	29	32
III.	25,802	17,378	47	273	127	74	28	44
IV.	11,042	11,042	27	46	8	1	2	35
V.	14,063	14,063	39	224	139	46	25	14
VI.	8,819	8,819	30	66	11	9	2	44
VII.	8,889	8,889	26	77	41	9	5	22
VIII.	8,715	6,076	20	44	7	7	5	25
IX.	10,625	6,372	18	33	—	10	4	19
X.	9,584	6,806	20	50	1	4	6	39
XI.	10,747	10,174	44	156	89	24	11	32
XII.	7,656	7,656	23	72	20	13	7	32
XIII.	14,184	8,011	28	89	20	18	12	39
XIV.	9,965	8,941	32	187	83	55	10	39
XV.	9,375	5,955	18	89	44	19	6	20
XVI.	17,847	9,739	30	91	25	22	6	38
XVII.	19,374	11,180	27	63	10	14	9	30
XVIII.	10,556	9,410	30	139	28	44	25	42
XIX.	22,656	11,597	17	118	65	23	10	20
XX.	20,087	—	—	—	—	—	—	—
XXI.	10,416	7,760	24	145	68	22	17	38
XXII.	15,573	5,365	17	58	27	5	6	20
XXIII.	15,000	—	—	—	—	—	—	—
XXIV.	23,559	19,392	38	234	109	80	18	27
XXV.	29,437	26,069	32	293	184	79	16	14
XXVI.	19,790	8,385	28	159	113	37	8	1
XXVII.	29,427	18,385	29	186	159	15	2	10
Total Districts	400,202	264,478	699	3,115	1,468	681	271	695

B.—SOUTH

I.-II.	90,300	24,464	43	137	54	26	17	40
III.	35,317	32,184	45	169	64	57	25	23
IV.	40,589	31,195	10	27	8	7	2	10
V.	67,050	?	7	16	7	2	—	7
VI.-IX.	63,111	28,012	26	63	29	16	4	14
XII.	39,889	32,622	11	48	31	11	3	3
VIII.	37,533	4,577	8	9	5	3	1	—
X.-XI.	219,611	?	8	13	1	3	—	9
Totals Districts	593,400	?	158	482	199	125	52	106

N.B.—Government Quarters and Public Institutions are

IV.

Population, Density of Population and Distribution of Families in
+ 3-room tenements in 1892.

DISTRICTS.

Percentage of Families occupying tenements of				Aggregate No. of Individuals (Ap- proximate).	Square Yards to each Individual (Ap- proximate).	Density of Population (i. e., number of Individuals to each Acre), Approximate.
1 room.	2 room.	3 room.	+ 3 room.			
7·	18·	7·	68·	168	42·5	114
45·	23·5	15·	16·5	884	11·1	436
46·5	27·1	10·3	16·1	1,288	13·5	358
17·4	2·2	4·3	76·1	274	40·3	120
62·	20·6	11·2	6·2	1,077	13·0	372
16·7	13·6	3·	66·7	351	25·1	192
53·2	11·7	6·6	28·5	318	27·9	173
15·9	15·9	11·4	56·8	231	26·3	184
—	30·3	12·1	57·6	201	31·7	152
2·	8·	12·	78·	268	25·4	190
57·	15·4	7·	20·6	614	16·6	291
27·8	18·1	9·7	44·4	308	24·8	195
22·5	20·2	13·5	43·8	461	17·3	279
44·4	29·4	5·3	20·9	766	11·6	417
49·4	21·3	6·8	22·5	374	16·0	302
27·5	24·2	6·6	41·7	400	24·3	199
15·9	22·2	14·3	47·6	343	32·6	148
20·1	31·6	18·	30·3	702	13·4	361
55·2	19·5	8·4	16·9	480	24·1	200
—	—	—	—	—	—	—
46·9	15·2	11·7	26·2	657	11·8	410
46·6	8·6	10·3	34·5	224	23·9	202
—	—	—	—	—	—	—
46·6	34·2	7·7	11·5	1,094	17·7	273
63·	26·9	5·4	4·7	1,317	19·8	244
71·1	23·3	5·	0·6	674	12·4	390
85·5	8·	1·1	5·4	889	20·6	235
47·1	21·9	8·7	22·3	14,363 *	18·4	263

DISTRICTS.

* NOTE.—Aliens and North Front and Catalau
Bay Population are not included.

39·4	19·	12·4	29·2	440	55·6	87
38·	33·7	14·7	13·6	793	40·6	120
29·6	26·	7·4	37·	134	232·8	20
43·8	12·5	—	43·7	81	?	?
46·	25·6	6·4	22·	310	90·3	53
64·6	23·0	6·2	6·2	220	148·3	32
55·6	33·3	11·1	—	41	111·6	43
7·7	23·1	—	69·2	153	?	?
41·3	25·9	10·8	22·	2,172 *	?	?

excluded in estimating the areas shewn in the third column.

TABLE V.

Statement of the Chief Sanitary Defects dealt with amongst the Civil habitations of Gibraltar during 1892.

Description of Defect.	Number of Houses in which the defect was noted.
A.—WATER SUPPLY.	
1. Collecting area polluted	47
2. Mouth or inlet of tank exposed to pollution ...	64
3. Water in tank foul	27
4. Overflow of tank directly connected with drain ...	2
5. Tanks deficient of proper means of drawing water..	6
6. Insufficient supply of water for flushing, &c. ...	53
7. Wells generally insanitary	3
8. Well water highly polluted	6
B.—SEWERAGE.	
1.—Insufficient W. C. accommodation	26
2.—Insufficient means of flushing	41
3.—Situation of W. C. insanitary	37
4.—Fittings, &c., insanitary	39
5.—Soil pipes leaking	17
6.—Soil pipes unventilated	27
7.—House drains defective	62
8.—House drains untrapped	2
C.—KITCHENS.	
1.—Sinks untrapped... ..	37
2.—Sinks directly connected with sewer... ..	25
3.—Without flues for removing charcoal fumes ...	17
4.—Accommodation deficient	28
D.—LIVING ROOMS.	
1. Dirty	7
2. Damp	57
3. Overcrowded	8
4. Badly lighted and unventilated	89
5. Generally unfit for habitation	24
6. Roofs leaking	65
E.—YARDS.	
1. Badly paved... ..	58
2. Badly ventilated	17
3. Blocked with stores and refuse	42
4. Surface drain traps defective	79
5. Foulled by animals	20
F.—PREMISES GENERALLY.	
1. Unfit for habitation	6
2. In bad repair	36
3. Deficient of refuse receptacles	64
G.—GOAT SHEDS.	
1. Dirty or unsanitary	3
2. Occupied as human habitations	2
Total	1,143